SYLLABUS OF

MINOR SURGERY

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A SYLLABUS

OF

THE COURSE OF LECTURES

ON

MINOR SURGERY

DELIVERED ANNUALLY BY

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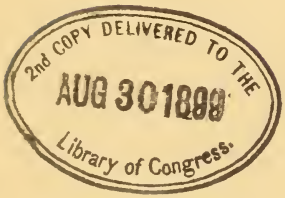

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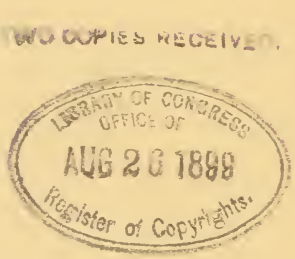

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SYLLABUS.

LECTURE I.

Introductory and Explanatory.

Outline of the meaning of Minor Surgery. As here considered, it does not concern itself especially with the operation, and certainly has little to do with Minor Surgical Operations. It is a painstaking analysis and consideration of the various problems of operations resolved into their ultimate parts, and concerns itself with the consideration of detail as such and as applied to any operation.

It is also a study from the common-sense standpoint of the various conditions which affect the welfare of the patient under the particular circumstances which make it an individual surgical matter.

Relations of Minor Surgery to General and Gynecological Surgery.

Technique; what it means; its importance; how it is elaborated by attention to detail.

LECTURE II.

I. Preparations for an operation.
   1. Of self.
   2. Of patient.
   3. Of room for operation.
   4. Of room for patient after operating.
   5. Of instruments.
   6. Of nurses.
   7. Of accessories, as hot water, bandages, etc.

II. Duties at operations.
   1. As operator.
   2. As on-looker.
   3. As friend of the patient.
   4. As minor assistant.
   5. As chief assistant.
   6. As assistant with instruments.
   7. As etherizer.
   8. To patient.
   9. To friends of the patient.
   10. To consultants.
   11. To former medical advisers.

III. Care of the patient.
   1. Before operation.
   2. During operation.
   3. After operation.

LECTURE III.

Hemorrhage.

I. Classification.

1. According to source.
   - *a.* Arterial.
   - *b.* Venous.
   - *c.* Capillary.
   - *d.* Parenchymatous, as from tongue.
2. According to time.
   - *a.* Primary.
   - *b.* Intermediary.
   - *c.* Secondary.
3. According to manner of occurrence
   - *a.* By rupture, the only cause of arterial hemorrhage.
     - α. Traumatic.
     - β. Disease of the vessel walls, as in hemophilia or "bleeders."
   - *b.* By diapedesis or transfusion; spontaneous from veins and capillaries.
   - *c.* By obstruction causing
     - α. Thrombosis.
     - β. Embolism.
4. According to quantity and when confined.
   - *a.* Ecchymosis, or petechia.
   - *b.* Suggillation, or sanguineous effusion.
   - *c.* Hemorrhagic infarct.
   - *d.* Hematoma, or blood tumor, sub-named according to location.
     - α. Hematometra.
     - β. Hemothorax.
     - γ. Hematocele.
     - δ. Hematopericardium.
     - ε. Hematosalpinx, etc.
5. According to location.
   - *a.* Epistaxis.
   - *b.* Hematemesis.
   - *c.* Hemoptysis.
   - *d.* Hemorrhoids.
   - *e.* Hematuria.
   - *f.* Menorrhagia.
   - *g.* Metrorrhagia.

II. Methods of arresting.

1. Nature's method.
   - *a.* Ends of inner coats of arteries retract and curl up.
   - *b.* Ends of arteries contract and diminish in caliber; surrounding tissues contract and support the end of the artery.
   - *c.* Coagula form in arteries; diminution in force of blood current.
   - *d.* Organization of coagula.
2. Exposure to air.
3. Cold — not desirable in open wounds; will help control a concealed hemorrhage. Sometimes advised in an atonic uterus after delivery.

LECTURE IV.

Hemorrhage, — *Continued.*

II. Methods of arresting, — *Continued.*

4. Heat.
   - *a.* Hot water — one of the best means in certain kinds of open wounds. No longer much used in abdomen. Iodine or alcohol added are sometimes beneficial.

     Application of both heat and cold directly to open wounds are now procedures of emergency.
   - *b.* Thermo-cautery.
   - *c.* Actual cautery.
   - *d.* Galvano-cautery.

5. Mechanical.
   - *a.* Position, as in flexion and extension and elevation of a part.
   - *b.* Compression.
     - α. Digital.
     - β. Tampons.
     - γ. Acupressure.
     - δ. Tourniquet { Field tourniquet. / Spanish windlass.
     - ε. Esmarch bandage.
     - ζ. Ecraseur.
   - *c.* Forcipressure and forceps.
     - α. Serre forte.
     - β. Serre fine.
     - γ. Artery forceps.
       - Pean.
       - Spencer Wells.
       - Wells' for broad ligament.
     - δ. Clamps for broad ligament.
     - ε. Clamps for large or broad pedicle, as in colotomy.
   - *d.* Torsion.
   - *e.* Acupuncture.

LECTURE V.

Hemorrhage, — *Continued.*

II. Methods of arresting, — *Continued.*
5. Mechanical, — *Continued.*
f. Ligation.
a. History of development.
Suggested by oldest writers, — Galen, Celsus, Avicenna, Albucasis.
First practised by A. Paré about 1560, and perfected by him.
Guillemeau followed, but used "mediate ligation," and whole practice fell into disuse.
Sharpe, in England, revived it in 1760 (wide and flat ligature).
Désault, in France, favored it in 1780.
Jones, supported by Abenethy and Sir A. Cooper, demonstrated in 1805 superiority of small round ligature.
Physick, of Philadelphia, introduced animal ligatures.
Jameson, of Philadelphia, — buckskin.
McSweeney, 1818; Fielding, 1826, — silkworm gut.
Sir A. Cooper followed with catgut.
Eve, with fibres of deer sinew.
Recently, tendons of various animals.
Catgut and sheep gut (submucous cellular tissue of intestines of lambs, sheep and goats, cleansed in alkaline bath and bleached in sulphurous acid), are in most common use.
β. Requisites of a ligature.
1. Strong enough for compression.
2. Able to maintain itself sufficiently long.
3. Unirritating.
4. Non-interference with union.
5. Capable of spontaneous absorption.
γ. Ligatures.
1. Silk — twisted, colorless, or iron-dyed.
2. Hemp — in disuse.
3. Animal —

Catgut or sheep gut	
Silkworm gut	
Tendons or sinews of	moose, buffalo, whale, rat, squirrel, tail of ox, kangaroo.

4. Metal — in disuse.
5. Elastic — rarely used except for temporary purposes.
6. Preparation of ligatures.
Aseptic by boiling in water, alcohol, cumol.
By dry heat.
Chromicized.
How to preserve.

LECTURE VI.

Hemorrhage, — *Continued.*

II. Methods of arresting, — *Continued.*

6. Styptics.

1. Perchloride of iron, liquid.
2. Sub-sulphate of iron, powder.

Describe action and how gotten rid of.

3. Turpentine undesirable.
4. Vegetable astringents, as

Acetic acid.
Tannic acid.
Gallic acid.
Oak bark, etc.

5. Alum, common salt.

III. Constitutional symptoms of hemorrhage.

Face pale, pulse weak, temperature sub-normal, dizziness, nausea and vomiting, specks before the eyes, roaring and noises in the ears, fainting and unconsciousness. If patient grows worse, then face pinched, gray, and waxy; nose cold, drawn and pointed; lips and tongue blue; eyes dull and glazed; body cold, especially hands and feet; blue under nails; pulse thready, small, frequent, imperceptible; unconsciousness; death.

LECTURE VII.

Hemorrhage, — *Continued.*

IV. Immediate treatment of hemorrhage.

1. Absolute rest, mental and physical.
2. External heat: hot water-bottles and blankets. Do not burn patient. Accident of burning too frequently happens. Patients under anæsthesia burned more easily than under other conditions.
   - *a.* Brandy, hypod. thirty gtts, or by mouth.
   - *b.* Ammonia by inhalation.
   - *c.* Camphor, thirty parts, sweet oil, seventy parts, hypod.
   - *d.* Strychnia, 1/60 gr., hypod.
   - *e.* Digitalis, 1/100 gr., hypod.
   - *f.* Normal salt solution.
     - *y.* Sub-cutaneous injection of
     - *z.* Intravenous injection of two to five pints.
   - *g.* Transfusion, obsolete, displaced by last.
   - *h.* Counteract exhaustion; do not over-stimulate; sometimes opiates. Give water freely to drink.

V. Constitutional treatment.

China, ipecac. bell., hyper., secale, phos., arnica, canth., hamamelis, ferrum, nux vomica.

LECTURE VIII.

Knots.

1. Square or reef knot.
2. "Granny," utterly unreliable and worthless; to be avoided.
3. Surgeon's.
4. Staffordshire.
5. Wesselhoeft.
6. Bowline.
7. Slip-noose.
8. Swedish fisherman's.

Illustration and practical demonstration.

LECTURE IX.

Drainage.

Wound secretions.

History of drainage: Guy de Chauliac, 1300–1370; Chassaignac, 1859, tubular drainage.

I. Natural, as by position. Open treatment; secondary suture.

II. Artificial.

1. Tubular.
   - *a.* Rubber tubes: flexible, slightly irritating, easy to manipulate, capable of sterilization, easily applicable, cheap and accessible.
     - α. How prepare.
     - β. How use.
     - γ. When remove.
     - δ. How remove.
   - *b.* Metal tubes.
     - α. Glass, most often used in abdomen.
     - β. Silver or gold for special purposes.
   - *c.* Absorbable tubes, of decalcified bone of ox, horse, or chicken; ivory.
     - α. Method of preparation.
     - β. How sterilized.
     - γ. How preserved.
     - δ. How disappear.
     - ε. Duration.
     - ζ. Objections.

   Absorbable tubes are little used now.

2. Capillary.
   - *a.* Catgut.
   - *b.* Silk.
   - *c.* Silkworm gut.
   - *d.* Horsehair.
   - *e.* Spun glass.
   - *f.* Gauze.
   - *g.* Miculicz drain.
   - *h.* Wicking, one of best methods.

Primary drainage.

Secondary drainage.

Through drainage.

LECTURE X.

Sponges.

I. Requisites.
   1. Open texture.
   2. Fine celled.
   3. Elastic.
   4. Power of absorption.

II. Natural, should be used only once.
   1. Method of cleansing.
   2. Method of bleaching.
   3. How made aseptic.
   4. How preserved.
   5. Objections.
      a. Difficulty of primary cleansing and sterilization.
      b. Require too much handling.

III. Artificial: gauze pads, used only once.
   1. How made.
   2. How made aseptic.
   3. Recommendation.
      a. Easily and surely sterilized.
      b. Minimum of handling.

Be careful in using about the natural cavities of the body, especially the abdominal. Count before and after using.

Stomach Pump.

How to use; caution in using it. Now practically obsolete. Displaced by following: —
Syphonage.
   1. Of stomach.
      a. For washing out.
      b. For examination of contents.
      c. For removal of poisons.
      d. For feeding.
   2. Of bladder.

LECTURE XI.

Needles.

I. Characteristics of a needle: temper.

1. Shape.
   - *a.* Curved sharply.
   - *b.* Curved slightly.
   - *c.* Curved in lower third, straight shank.
   - *d.* Straight.
   - *e.* Curved sharply with a long shank.
2. Ordinary sewing needle.
3. Insect needle.
4. Acupressure needle.
5. Long needles for uterine stump or a pedicle.
6. Needles with open eye.
7. Hagedon needle.
8. Keith.
9. Packard.
10. Martin.
11. Smith.
12. Needles in handles.
    - *a.* Aneurism.
    - *b.* Reverdin.
    - *c.* Special, as for perineum.
    - *d.* Endless thread (Göz.).

Needle-Holders.

1. Von Langenbeck (best for all-round work).
2. Dieffenback or Roser.
3. Reiner.
4. Special holders (as for eye).
5. Hagedon.
6. Downs.

There are many others, but these were selected to illustrate types.

LECTURE XII.

Sutures.

I. General classification.
   1. "Stitches of coaptation" — superficial.
   2. "Stitches of approximation" — intermediate.
   3. "Stitches of relaxation" — deep.

II. Requisites of a suture.
   1. Fine.
   2. Smooth.
   3. Strong enough for required strain.
   4. Soft and pliable, to adapt itself.
   5. Readily follow the needle.
   6. Readily tied in a knot.
   7. Readily removed.
      a. Mechanically.
      b. By absorption.
   8. Non-irritating.

III. Common agents.
   1. Silk speaks for itself, when the failings of others are considered.
   2. Catgut.
      Sheep gut. } Best absorbable, and now more used than any others.
      Goat gut. }
      a. Not so manageable as silk.
      b. More troublesome to tie.
      c. More difficult to secure exact coaptation.
      d. More trouble to prepare.
      e. Dangerous if not properly prepared.
      f. May absorb too quickly.
   3. Silkworm gut.
      a. Polished and smooth.
      b. Strong and transparent.
      c. Unchangeable and non-irritating.
      d. Stiff and difficult to tie.
      e. Especially praised in ruptured perineum, vaginal fistulæ and fissured palate.
      f. Not adapted to very fine work.
   4. Horsehair.
      a. Very pliant, smooth, strong, delicate and non-irritating. Highly praised by those who use it.
      b. Needs care in preparation and in tieing; easily removed, as are all foregoing.

LECTURE XIII.

Sutures, — *Continued.*

III. Common agents, — *Continued.*

5. Metal. Wires of lead, copper covered with gutta percha, iron, gold and silver have been used. Silver is now most used because —
   - *a.* Of ease of fastening.
   - *b.* Of accuracy of adaptation.
   - *c.* Of support and immobilization.
   - *d.* Of ease of regulating tension.
   - *e.* Smooth, pliable, non-irritating.
   - *f.* It may be left indefinitely.
   - *g.* Deep suture to relax borders.
   - *h.* For suturing bone.
   - *i.* Objections: not adapted to fine work; not so readily removed.

IV. Application of the suture.

1. Line of passage of the suture.
2. Distance from edge of wound.
3. Edges must not incurve.
4. May be tied at once, or all inserted and then tied.
5. Knot.
   - *a.* Do not tie in wound line.
   - *b.* Do not strangulate, else excite inflammation, suppuration and cutting of tissues.
6. Various sutures may be used together.
7. Order of application usually —
   - *a.* Deep.
   - *b.* Intermediate.
   - *c.* Superficial.

   Tie in reverse order.
8. Removed in from three to five, eight to twelve days.
9. How to remove the various kinds.
10. Support parts after removal by adhesive plaster, truss, bandage, etc.
11. Pilot thread for metal; describe and illustrate.

LECTURE XIV.

Sutures, — *Continued.*

V. Classification.

1. Interrupted, typical suture. Deep and intermediate sutures always of this variety.
2. Continuous suture, "glover's stitch," "over-and-over" stitch.
   - *a.* Superficial, usually of this variety.
   - *b.* Describe application; differentiate right and wrong way.
   - *c.* Describe tieing at each end.
3. Buried suture, continuous or interrupted.
4. Buried skin suture, continuous.
   - *a.* Requisites.
   - *b.* How apply.
   - *c.* How fasten at beginning and at end.
5. Button suture: a suture of relaxation.
   - *a.* How used.
   - *b.* Advantages.
6. Quilt suture.
7. Coil suture.
8. Pin suture or hare-lip suture; practically obsolete.
9. Quill suture; practically obsolete.
10. Bead suture; practically obsolete.
11. Elastic suture; practically obsolete.
12. Herring-bone suture, useful in post-mortem work.
13. Bone sutures { Wire. Catgut. Silkworm gut.
14. Special sutures.
    - *a.* McBurney suture.
    - *b.* Halstead suture.

Practical demonstration of ligatures, knots, sutures, etc.

LECTURE XV.

Sutures, — *Continued.*

V. Classification, — *Continued.*

15. Visceral sutures.

a. General considerations. Recognition of three coats to the intestine necessary.

b. Requisites of a visceral suture.

α. Firm grasp of intestinal walls.

β. Non-puncture of whole thickness of wall.

γ. Firm apposition of peritoneal surfaces.

δ. Applied close enough to prevent leakage.

ε. As fine a suture material as possible.

ζ. Apply always with a round needle as small as possible.

η. Make principal sutures of silk to hold intestinal walls in close coaptation.

θ. Make reinforcing peritoneal sutures of fine catgut.

c. Varieties of visceral sutures.

α. Lembert: interrupted or continuous. Passed through the serous and muscular coats of the intestine down to, but not through, the mucous coat. Sometimes called Dupuytrens suture.

β. Jobert: passed through all the coats of the intestine; drawn tightly, it cuts through into intestine and is so gotten rid of. Objection: every stitch punctures the intestine and, during extreme gas distention, may leak.

γ. Emmert: interrupted. In results no better than others. Objection: too much time to apply.

δ. Gely: continuous; two needles and one long thread. Results excellent, but too tedious in application.

ε. Czerny: combination. Edges of peritoneum and muscular coat are sutured together by fine interrupted suture; then Lembert suture is applied.

ζ. Gussenbauer: interrupted. Combination of Lembert and Czerny in one thread.

Remarks. — As good results as any are obtained by a double continuous suture (Lembert) the second one applied over the first.

LECTURE XVI.

Bandaging.

I. General Consideration of bandages.

II. The Roller bandage.
   1. Uses of.
   2. How to make it by hand; by machine.
   3. How to apply it.
      a. Circular turns.
      b. Spiral reversed turns.
      c. Figure of eight turns.
      d. Recurrent turns, for ends of fingers, etc., or for stump.

The whole art of bandaging with a roller is only a combination of these turns.

Practical demonstration of how to make a roller from a piece of cloth seven yards long, which is torn into strips of variable width; each student has a strip given him, which he rolls and re-rolls under inspection until he has accomplished an understanding of how to do it.

LECTURE XVII.

Bandaging, — *Continued.*

III. Special bandages.

1. Of the foot.
2. Figure eight of the ankle.
3. Spiral reversed of the leg.
4. Figure eight of the knee.
5. Figure eight of the knee at different angles of flexure.
6. Spiral reversed of the thigh.
7. Complete bandage of the entire lower extremity.

Practical demonstration and illustration on a living model.

LECTURE XVIII.

Bandaging, — *Continued.*

III. Special bandages, — *Continued.*

8. To cover in the end of a finger.
9. Of a finger.
10. Of all the fingers.
11. Of the thumb.
12. Of the whole hand and wrist; the gauntlet.
13. Of the forearm.
14. Figure eight of the elbow.
15. Figure eight of the elbow at different angles of flexure.
16. Of the arm.
17. Spica bandage of the thumb.
18. Complete bandage of the entire upper extremity.

Practical demonstration and illustration on a living model.

LECTURE XIX.

Bandaging, — *Continued.*

III. Special bandages, — *Continued.*

19. Spica bandages of the shoulder.
20. Spica bandages of the hip and groin.
21. Double spica of the hip and groin.
22. Bandages of the head.
    - *a.* Occipito-facial; valuable for the retention of dressings.
    - *b.* Figure of eight for one or both eyes.
    - *c.* Fronto-occipito-cervical figure of eight.
    - *d.* Fronto-occipito-mental figure of eight.

Practical demonstration and illustration on a living model.

LECTURE XX.

Bandaging, — *Continued.*

III. Special bandages, — *Continued.*

22. Bandages of the head.—*Continued.*
    - *e.* Barton's bandage.
    - *f.* Gibson's bandage.
    - *g.* Recurrent bandage of the scalp; the capeline.

23. Bandages of the chest.
    - *a.* For retaining dressings.
    - *b.* For fractured rib.
    - *c.* Of one breast.
    - *d.* Of both breasts.

24. Bandage of fractured lower jaw.

Practical demonstration and illustration on a living model.

LECTURE XXI.

Bandaging, — *Continued*

III. Special bandages, — *Continued.*

25. Bandages for fractured clavicle.
    - *a.* Sayre's bandage.
    - *b.* Velpeau bandage.
    - *c.* Désault bandage; useful for fractured clavicle, fractures of the acromion or coracoid process, and of the anatomical neck of the humerus.
26. T bandage; single and double-tailed.
27. Four-tailed bandage.
28. Six-tailed bandage.
29. Many-tailed bandage.
30. Handkerchief bandages.
    - *a.* Four-tailed for vertex and occiput.
    - *b.* Square cap for the head.
    - *c.* For the shoulder.
    - *d.* For the hand.
    - *e.* For the thigh.
    - *f.* For the hip.
    - *g.* For the foot.
31. Cravat bandages.
32. Slings.
    - *a.* Encircling the neck.
    - *b.* Leaving shoulder of the injured side free.
    - *c.* Leaving shoulder of the opposite side free.

Practical demonstrations and illustration on a living model.

LECTURE XXII.

Bandaging, — *Continued.*

III. Special bandages, — *Continued.*

33. Immovable bandages.

a. Materials.

α. Starch.

β. Plaster of Paris.

γ. Silicate of potash or soda.

δ. Glucose.

b. Uses of.

c. Precautions in application.

α. Do not apply next to the skin.

β. Do not apply over an open wound, unless surely aseptic.

γ. Maintain desired position of parts until sufficiently set or dried.

δ. If painful after application, remove and re-apply.

ε. Do not apply too soon after an injury.

d. Plaster of Paris jacket.

Practical demonstration of application of plaster of Paris jacket on a living model.

LECTURE XXIII.

Bandaging, — *Continued.*

III. Special bandages, — *Continued.*
  33. Immovable bandages, — *Continued.*
    e. Silicate of potash bandage.
    f. Bavarian splint.

Practical demonstration of both on a living model.

LECTURE XXIV.

Splints and Fracture Dressings.

1. General principles of splints.
2. Materials.
   - *a.* Metal: shaped, in sets, and excellent.
   - *b.* Wood: also shaped, and in sets; excellent.
   - *c.* Pasteboard.
   - *d.* Gutta-percha.
   - *e.* Leather.
   - *f.* Plaster of Paris and many other substances.
3. Kinds.
   - *a.* Straight: anterior and posterior, internal and external.
   - *b.* Angular: anterior, movable angle, posterior, internal and external.
   - *c.* Special splints innumerable.
   - *d.* Extension splints.
   - *e.* Fracture box.
   - *f.* Extension and counter-extension by means of splints, weights and pulleys, inclined planes, etc.

Practical demonstration on a living model.

LECTURE XXV.

Instruments.

1. Pocket cases.
2. Aspirator and aspiration.
3. Tracheotomy case, exhibited and explained.
4. Post-mortem case.
5. Amputation or general operating case.

Various instruments exhibited and explained, with general instructions for their care.

LECTURE XXVI.

Sepsis.

This term includes all surgical conditions due to bacterial infection.

History of inception of present day understanding, which began with Lister in 1867-69.

History of Listerism —

Carbolic acid.

Spray.

Absorptive dressings.

Protection from air.

Wonderful results which revolutionized previous methods.

Almost universal adoption of Listerism.

Divided into —

I. General infection.

1. Acute septicæmia.
2. Pyæmia.
3. Sapræmia.
4. Toxæmia.

II. Local infection.

1. Suppuration.
   - *a.* Stitch abscesses.
   - *b.* Wound abscesses.
   - *c.* Metastatic abscesses — usually due to infectious emboli or transportation of infection to a new focus.
2. Gangrene.
3. Diphtheria.
4. Erysipelas.

Pyogenic micro-organisms.

Most common,
- Staphylococcus pyogenes aureus.
- Streptococcus pyogenes.
- Bacterium coli commune.

Less common,
- Staphylococcus epidermidis albus.
- " pyogenes albus.
- " " citreus.
- Gonococcus of Neisser.

Least common,
- Bacillus pyocyaneus; bacillus of green pus.
- " aërogenes capsulatus; gas producer; not a pus producer.
- Micrococcus lanceolatus; diplococcus pneumoniæ.

LECTURE XXVII.

Antisepsis.

Opposed to sepsis. Includes all means which are used to limit or destroy the agents of sepsis.

I. Antiseptics.
Arrest fomentation and putrefaction, but do not necessarily destroy micro-organisms.

II. Disinfectants.
Kill pathogenic or putrefactive organisms.

III. Deodorants.
May be neither disinfectant nor antiseptic and are valueless for surgical purposes.

LECTURE XXVIII.

Antisepsis, — *Continued.*

IV. Agents.

1. Carbolic acid.
   - Used in solutions of 1 to 20 to 1 to 40.
   - Carbolic spray, theory of its effects.
2. Corrosive sublimate.
   - Used in solutions of 1 to 500 to 1 to 5,000.
     - Care in use; not safe in abdominal cavity.
     - 1 to 2,000 to 1 to 2,500 most common.
     - 1 to 5,000 useless unless enormous amount is used, continued for a long time and hot.
   - No solution sufficiently strong to be effective is safe about the mucous or serous surfaces and membranes.
3. Permanganate of potash and oxalic acid.
4. Creolin } Types of coal tar derivatives.
5. Lysol }
6. Formaldehide.
   - Formalin, one-half of one per cent. to two per cent. solution.
7. Per-oxide of hydrogen.
8. Heat: the ideal disinfectant.
   - *a.* Moist.
     - *α.* Boiling water.
     - *β.* Soda solution.
     - *γ.* Steam.
     - *δ.* Steam under pressure.
   - *b.* Dry heat: actual flame.
9. Soda and chloride of lime.
   - Theory of action.

LECTURE XXIX.

Asepsis.

Complete absence of sepsis, an ideal condition difficult to obtain. Obtained in surgery by excluding all pathogenic organisms from operative field. Such a field is said to be sterile.

Surgical sterilization means employment of a method which includes absolute and complete freedom from bacteria.

Methods: —

1. Heat.
   a. Dry.
   b. Moist.
2. Chemical disinfectants.
3. Mechanical cleansing; removes all extraneous matter; disinfection by removal.
4. Fractional sterilization.

LECTURE XXX.

Anæsthesia.

I. Primary effects: disturbance of function. Exaltation.
   Stage of excitement.
   1. Excitation (local) of nerves of respiratory passages. Taste and smell and naso-pharyngeal branches of fifth pair of nerves powerfully excited.
   2. Excessive salivary secretion with frequent deglutition.
   3. Tickling in larynx and cough.
   4. Sense of suffocation; resistance.
   5. Humming in ears.
   6. Flashes of light before the eyes.
   7. Heart pulsations quickened and can be felt.
   8. Vessels throb; perspiration; heat flashes; quickened respiration; pupils contract, eyes close; all reflexes disturbed, involuntary urination or even defecation, and general appearance of intoxication.

II. Secondary effects: paralysis of function.
   Stage of anæsthesia. "Surgical anæsthesia."
   1. Skin loses sensibility.
   2. Pupils contracted.
   3. Temperature falls.
   4. Pulse goes to normal or below.
   5. Blood pressure less.
   6. Respiration deep, full, and involuntary.
   7. Voluntary motion lost.
   8. Reflexes abolished.
   9. Complete insensibility.

III. Tertiary effects: dangerous.
   Stage of profound anæsthesia.
   1. Syncope.
   2. Embarrassed respiration.
   3. " heart's action.
   4. Pupils widely dilated, remaining so until death.
   5. Asphyxia.
   6. Snoring respiration.
   7. Death.

IV. Consideration of details.
   1. Eyes.
   2. General sensibility.
   3. Brain.
   4. Volition.
   5. Muscular movements.
   6. Respiratory movements.
   7. Heart.
   8. Temperature.
   9. Secretion.
   10. Recovery, inversion of phenomena.

LECTURE XXXI.

Anæsthesia, — *Continued.*

V. Administration of anæsthesia.
  1. Preparation of patient.
    a. Abstinence from food for four to six hours.
    b. Last food taken light and digestible, as beef tea or mutton broth. Milk improper.
    c. Prevent stomach contents from entering trachea, in case of vomiting. Best to have stomach empty.
    d. Recumbent position.
    e. Remove false teeth and foreign substances from mouth.
    f. No constricting bands about neck or body.
    g. Mind quiet.
    h. One ounce whiskey as stimulant before anæsthetic in selected cases.
    i. Be careful in presence of artificial light.
    j. Watch pulse and respiration.
    k. Tongue forceps and mouth gag.
  2. Ether, a stimulant. Ethylic oxide; ethylic ether; sulphuric ether. Boiling point ninety-six degrees.
    a. Open administration.
    b. Closed administration.
  3. Chloroform, a depressant. It paralyzes heart muscles or contained ganglia. Full blood pressure, due to direct action on heart.

VI. Choice of anæsthetic.
  1. Ether preferred.
    a. Organic brain diseases.
    b. Brain tumors.
    c. Atheromatous vessels.
    d. Organic diseases of heart.
    e. In cases requiring long-continued narcosis.

LECTURE XXXII.

Anæsthesia, — *Continued.*

VI. Choice of anæsthetic, — *Continued.*

2. Chloroform.

a. Puerperal conditions.

b. In very young.

c. In very old, or where senile changes are marked.

d. In organic diseases of lungs.

e. In organic diseases of kidneys.

f. In cases requiring brief narcosis.

VII. If danger threatens.

1. Remove all obstruction to respiration.
2. Draw tongue forward.
   a. By direct traction on tongue.
   b. Forcibly carrying lower jaw forward.
3. Extension of head and neck.
4. Slight shock by
   a. Slapping with cold wet towel.
   b. By pouring ether on to chest or spine.
5. Inversion of body.
6. Drugs, — alcohol, ammonia, amyl-nitrite, digitalis, atropine, caffeine, *strychnia*, 1/50 gr., hypodermatically.
7. Artificial respiration.

Nitrous oxide.
" " and ether.
" " " chloroform.
Chloroform " ether.
" " oxygen.
The A C E mixture.

Local anæsthesia.
Salt and ice.
Ethyl chloride.
Cocaine.
Eucaine.
Schleisch's method.

LECTURE XXXIII.

Vaccination.

Introduced to notice in 1798.

History of smallpox.

Illustrations of former ravages of smallpox.

Most deaths in children under ten years.

Immunity was general. Deaths among a small proportion of population. Where no protection from previous epidemics, death rate frightful.

Originated probably in China or India.

Unknown in Europe until end of sixth century. Variola — from *varus*, a pimple; or *varius*, spotted.

Inoculation known in China ages before disease known in England, by inserting crusts in nose.

In Turkey, inoculation early in eighteenth century.

In England, introduced from Turkey, in 1721.

First done May 14, 1796, by taking matter from vesicle of cowpox. Human to human, arm to arm vaccination.

Early in present century, Jenner published his "Inquiry."

Then followed many experiments.

Vaccine vesicle — a multilocular structure.

1. Papular stage — stage of inflammation.
2. Stage of umbilication.
3. A true vesicle — converted into
4. A pustule.
5. A crust.
6. Desquamation.

Animal vaccination.

How to vaccinate.

Time of immunity.

Complications and sequelæ of vaccination.

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